

STATUS OF THE CAPTIVE SNOW LEOPARD (PANTHERA UNCIA) IN 1987

BY LEIF BLOMQVIST

The following amendments must be made to the 1986 report (Blomqvist, 1988):

The Rare Feline Breeding Center in Center Hill, Florida, had a stock of 5.4 animals at the end of 1986, not 4.2 as reported. Dushanbe Zoo, USSR, had lost 1.1 animals and their status should have been 1.1 instead of 2.2. Earl Tatum in Holiday Island had also lost 0.1 animal and transferred 0.1 to Weir; also Mr. Tatum had transferred a pair to Columbian Park Zoo, Lafayette, Indiana in 1985, which was not reported to the studbook keeper. Holiday Island Park's status should therefore have been 4.2 and not 5.5. Two pairs were housed in unknown locations in 1986. A year later, only two males are housed in institutions not reported to the studbook keeper. Both these animals are located in North America and apparently kept by private individuals. It is hoped that these owners will contact the studbook keeper as soon as possible in order to get their snow leopards included in the register. Such cases could be avoided if all transfers within North America were notified to the SSP co-ordinator, Dan Wharton, Bronx Zoo, New York 10460, or directly to the studbook keeper.

The final status for 1986 should therefore be 407 animals (209.198) and not 412 as reported (Blomqvist, 1988).

Changes in the stock in 1987

85 cubs (45.35.5) were born in 1987, of which 38 (19.14.5) or 44.7% died. The cub mortality during 1978-1987 has varied from 14.3% to 77.8% with a mean cub mortality of 40.9% for the total population. Little improvement has been achieved during the last ten years. More efforts should be made to decrease the high number of cubs which never reach the age of six months. During the ten-year period mentioned above, cub mortality varied in Europe from 17.6% to 77.8% (mean = 44.1%) (Figure 1), in North America from 22.6% to 51.5% (mean = 32.9%) (Figure 2), and in the Soviet Union from 14.3% to 72.7% (mean = 53.1%) (Figure 3). Outside these three main breeding regions, only 10 cubs have been born (in 1985 and 1987); their mortality was 29.2%. The cub mortality in the above-mentioned regions during the last ten years can be seen in Figure 4.

One litter, bred in Jackson Zoo, Mississippi, contained four cubs of which none survived. It is worth mentioning that this litter was delivered over a two-day period. St. Louis Zoo has also recorded a litter being delivered with a day's interval. As in most felids, the snow leopard litter is usually delivered within 12 hours.

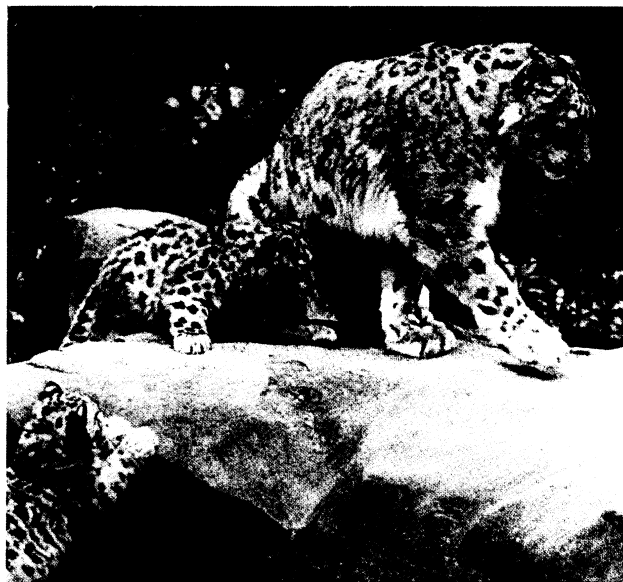


Photo: Bruni Eecke from Krefelder Zoo Jahresbericht 1987

The breeding female "Viivi, Helsinki 15", born 1973, with her last litter of two male cubs, born in Krefeld Zoo on 12th May 1987. This female produced six litters of altogether 13 cubs in Krefeld Zoo.

Two litters were born in six zoos (Table 1), while Dublin Zoo bred three litters out of two females, one of which thus produced two litters in one year. This has been recorded elsewhere before when the dam loses her first litter, as happened in this case. If the first litter is born early in the breeding season, the female can remate successfully and produce another litter in the summer; but if the female delivers her first litter in the summertime, she may copulate but does not become pregnant again.

Rosamond in California succeeded in breeding from a two year old female. Usually snow leopard females do not reach sexual maturity before they are three years old (Blomqvist *et al.*, 1982). Only once before, in Krefeld Zoo, West Germany, has a two year old female delivered a litter. Sapporo Zoo became the first zoo in Japan to succeed in breeding snow leopards, with a litter of 1.1. Padma Naidu Himalayan Zoo in Darjeeling was the first zoo to breed the snow leopard on the Indian subcontinent; though the two cubs died, it was still a promising start for a future breeding programme in India.

Two litters, bred in Melbourne Zoo, Australia (Embury, A.S., pers. comm.), and Tierpark Hellabrunn, Munich (Schaffer *et al.*, 1988), were affected by Multiple Ocular Coloboma, a disease which has been reported earlier from Amsterdam (Wahlberg *et al.*, 1982), Henry Doorly Zoo, Omaha

(Phillips, 1981), Helsinki Zoo (Gripenberg *et al.*, 1985), Dublin Zoo (Barnett, 1981, 1982) and Zurich Zoo (Isenbuegel *et al.*, 1985). The lesions in M.O.C. can vary from a barely visible notch in one eyelid to total anophthalmia and aplasia in parts of the upper eyelids. All the above-mentioned cubs bred in Munich and Melbourne had to be put to sleep. As the Australian cubs were bred in November, this did not take place until the following year, which explains the figures for Melbourne in Table 1.

No animals were wild caught in 1987, and as the total number of deaths in the year was 59 (31.23.5) the captive stock increased by 26: the total was thus 433 (223.210) snow leopards on 1st January 1988.

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5. Table 1. Changes in the captive snow leopard stock in 1987. Two births is recorded with * in the table, three births with ***.

Location	Tot. 1986	Births	Cub mortality	Tot. deaths	Imports	Exports	Tot. 31.12.1987
Albuquerque, USA	1.1	-	-	-	-	-	1.1
Alexandria, USA	0.1	-	-	-	1.0 G. Baton Rouge	-	1.1
Alma-Ata, USSR	2.2	-	-	0.1	-	-	2.1
Amsterdam, Ne	1.1	-	-	-	-	-	1.1
Arnhem, Ne	1.1	-	-	-	-	-	1.1
Bandon, USA	-	-	-	-	0.1 SanJuan Bautista	-	0.1
Banham, UK	-	1.1	-	-	-	-	2.2
Barcelona, Spain	-	-	-	-	0.1 Zurich	-	0.1
Basle, Switz	2.3	2.1	-	-	-	1.0 Odense	0.1
Bekesbourne, UK	7.8	0.2	-	-	-	1.1 Liberec	3.4
Binghamton, USA	-	-	-	-	1.0 Denver	-	6.9
Birmingham, USA	-	-	-	-	1.0 Bronx	-	1.0
					0.1 Philadelphia	-	
					0.1 Memphis	0.1 Memphis	
Bloomington, USA	2.4	-	-	0.1	-	-	1.1
Buffalo, USA	2.2	1.1	1.0	-	-	-	2.3
Calgary, Can	3.2	-	-	-	1.0 G.Baton Rouge	-	3.3
Center Hill, USA	5.4	2.4*	1.3	-	-	1.0 Houston	2.2
Chengdu, China	1.0	-	-	-	-	1.0 unknown loc.	5.5
Chessington, UK	1.1	-	-	-	-	-	1.0
Chicago, Brookfield, USA	3.2	-	-	-	-	-	1.1
Chicago, LPZ, USA	1.0	-	-	-	-	1.0 Evansville	1.1
Chipping Norton, UK	1.0	-	-	-	-	1.0 Oklahoma City	2.2
Chongqing, China	1.0	-	-	-	-	-	1.0
Cincinnati, USA	4.3	-	-	1.0	1.0 SanJuan Bautista	-	1.0
					-	0.1 Evansville	4.1
Cleveland, USA	3.3	-	-	-	-	0.1 Seffner	2.2
					-	1.0 Memphis	1.1
Colchester, UK	1.1	-	-	-	-	0.1 Houston	2.2
Col. Springs, USA	3.1	-	-	-	0.1 Omaha	-	1.1
Copenhagen, Den	1.1	-	-	-	-	1.0 Pueblo	1.1
Dalian, China	1.1	-	-	-	-	-	1.1
Dallas, USA	2.2	-	-	-	-	-	1.1
Darjooling, India	1.1	0.0.2	0.0.2	0.0.2	-	-	2.1
Denver, USA	3.3	0.1	-	-	-	-	1.1
					-	0.1 Binghamton	
Des Moines, USA	1.1	-	-	-	-	0.1 Bronx	1.1

Jerout, USA	0.2	3.0	-	-	1.0 Oklahoma City	4.1
Don-la Fontaine, F	1.1	-	-	-	-	1.1
Dublin, F	1.2	3.0,2**	3.0,2	-	1.0 Marwell	1.2
Dudinka, USSR	1.1	-	0.1	-	1.0 Great Yarmouth	1.0
Edinburgh, UK	1.1	-	-	-	-	1.1
Edmonton, Can	1.1	-	-	-	-	1.1
Eichberg, Switz	1.2	-	-	-	0.1 Barcelona	1.1
Esbilstana, Sved	2.1	-	-	-	-	2.1
Evansville, USA	-	-	-	-	1.0 Brookfield	1.1
Grand Rapids, USA	1.1	-	-	-	0.1 Cincinnati	1.1
Great Yarmouth, UK	0.1	-	1.0	-	1.0 Dublin	0.1
G.Raton Rouge, USA	3.2	4.2*	1.0	-	1.0 Alexandria	4.4
Grodno, USSR	1.0	-	-	-	1.0 Buffalo	1.0
Guangzhou, China	0.1	-	-	-	-	0.1
Helsinki, Fin	10.9	0.0.1	0.0.1	1.0.1	1.1 Tokyo	7.7
Holiday Island, USA	4.2	-	-	-	1.0 Zurich	3.1
Houston, USA	1.1	-	-	-	-	2.2
Hudson, USA	1.0	-	-	1.0	1.0 Calgary	1.1
Jackson, USA	1.1	2.2	2.2	-	0.1 Cleveland	1.3
Jersey, UK	1.1	0.2	-	-	-	1.1
Jinan, China	1.1	-	-	-	-	2.1
Jiuchuan, China	2.1	-	-	-	-	1.1
Kansas City, USA	1.1	-	-	-	-	1.1
Karlsruhe, GFR	1.1	-	-	-	-	1.1
Kashgar, China	1.1	-	-	-	-	1.1
Kings Island, USA	1.3	-	-	-	-	1.3
Knoxville, USA	1.1	-	-	-	-	1.1
Krefeld, GFR	3.4	2.0	-	-	-	5.4
Lafayette, USA	1.1	-	-	-	-	1.1
Lanzhou, China	1.0	-	-	-	-	1.0
Legai, Can	2.2	-	-	-	-	2.2
Leipzig, GDR	2.2	-	-	0.1	-	2.1
Liberec, CSSR	-	-	-	-	1.1 Bekesbourne	1.2
Little Rock, USA	3.2	-	1.0	-	0.1 Winnipeg	2.2
Lodi, USA	2.1	2.0	-	-	-	3.1
Los Angeles, USA	1.1	2.1	-	-	1.0 Seffner	3.2

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Marwell, UK	2.1	-	-	-	1.0 Dublin	1.1
Melbourne, Aust	1.2	1.1	-	-	-	2.3
Memphis, USA	1.2	-	0.1	-	0.1 Birmingham	2.1
Miami, USA	-	-	-	-	-	1.0
Milwaukee, USA	2.0	-	-	-	-	3.0
Monroe, USA	1.2	2.1	0.1	-	2.1 SanJuan Bautista	1.1
Moscow, USSR	4.4	2.3*	3.3	-	1.0 Riga	3.4
Munich, GFR	2.2	3.0	3.0	-	-	2.2
Nagoya, Jap	1.1	-	-	-	-	1.1
New York, Bronx, USA	9.8	1.3*	0.1	1.1	1.0 San Francisco	8.11
Newport, USA	2.0	-	-	-	0.1 Denver	2.1
Novara, It	1.1	-	-	-	0.1 San Francisco	1.1
Novosibirsk, USSR	1.4	-	-	-	-	1.4
Odense, Den	-	-	-	-	-	-
Oklahoma City, USA	1.2	-	0.1	-	-	1.1
Omaha, USA	4.5	-	-	-	1.0 Detroit	2.2
Ostrava, CSSR	1.1	-	1.0	-	0.1 Col. Springs	3.4
Peking, China	1.1	-	-	-	-	1.1
Philadelphia, USA	1.1	-	-	-	-	1.1
Port-Saorfi, F.	1.1	2.3*	-	-	0.1 Birmingham	1.0
Portland, USA	1.2	-	-	-	-	1.1
Powell, USA	1.1	-	-	0.1 St. Louis	-	1.3
Poznan, Pol	1.1	-	-	-	-	1.1
Pueblo, USA	1.1	-	1.0	-	1.0 Col. Springs	1.1
Racine, USA	1.1	-	-	-	-	1.1
Riga, USSR	1.0	-	-	-	-	1.0
Rochester, USA	3.2	-	-	-	1.0 Seffner	2.2
Rock Island City, USA	1.0	-	-	-	-	1.0
Rosmond, USA	1.1	1.0	1.0	-	-	1.1
Rumford, USA	1.0	-	-	-	-	1.0
Salt Lake City, USA	2.2	-	-	-	1.0 San Francisco	1.2
San Antonio, USA	4.5	-	0.1	-	-	5.5
San Diego, USA	2.1	-	-	-	0.1 Dallas	2.2
San Francisco, USA	2.3	2.0	-	-	0.1 Seffner	-
					1.0 S.Lake City	-
					1.0 Milwaukee	-
					0.1 Newport	-
					0.1 Bronx	4.1

Location	1986	Births	Cub mort.	Tot. deaths	Wild	1986	1987
Sao Jhuat, Baurista, USA	1.1	-	-	-	-	2.1	Momroe
Sapporo, Jap	1.1	1.1	-	-	-	-	1.0 Miami
Seochi Plains, USA	1.0	-	1.0	-	-	-	1.0 Cincinnati
Seattle, USA	3.3	0.3	0.3	1.3	-	-	0.1 Brandon
Seffner, USA	2.2	0.1	-	-	-	-	-
Seoul, S. Korea	1.1	-	-	-	-	-	4.4
Shanghai, China	3.2	-	-	-	-	-	1.1
Shenyang, China	1.0	-	-	-	-	-	3.2
Sioux Falls, USA	1.1	-	-	-	-	-	1.0
St. Louis, USA	1.2	2.2*	2.1	2.1	-	-	1.1
St. Paul, USA	1.1	-	-	-	-	-	1.2
Stoughton, USA	-	2.2	-	-	-	-	1.1
Tallinn, USSR	2.2	5.1*	2.1	2.1	-	-	1.0
Tianjin, China	1.0	-	-	-	-	-	5.2
Tokyo, Jap	-	-	-	-	-	-	1.0
Toledo, USA	3.2	-	-	-	-	-	1.1
Topeka, USA	3.0	-	-	-	-	-	1.2
Toronto, Can	1.2	-	-	-	-	-	3.0
Tulsa, USA	1.1	-	-	-	-	-	1.3
Urumqi, China	3.0	-	-	-	-	-	1.1
Vallejo, USA	0.1	-	-	-	-	-	3.0
Weir, USA	1.1	1.1	1.0	1.0	-	-	0.1
Wellington, N. Zealand	1.1	-	-	-	-	-	2.3
Winnipeg, Can.	1.3	-	-	-	-	-	1.1
Wuppertal, GFR	1.1	0.1	-	-	-	-	1.1
Xining, China	4.4	-	-	-	-	-	1.2
Yinchuang, China	1.1	-	-	-	-	-	4.4
Zurich, Switz	2.5	-	-	-	-	-	1.1
Unknown location, USA	1.0	-	-	-	-	-	2.5
TOTAL	209,198	45,35.5	19,14.5	31,23.5	-	Tot 31.12.87	223,210
	(407)	(85)	(88)	(59)	-		(483)

Location	1986	Births	Cub mort.	Tot. deaths	Wild
1.0 Oklahoma City	1.2	-	-	-	-
1.0 San Antonio	3.0	-	-	-	-
0.1 Winnipeg	1.3	-	-	-	-
0.1 Toronto	1.1	-	-	-	-
0.1 Liberec	3.0	-	-	-	-
1.0 Helsinki	0.1	-	-	-	-
1.0 Center Hill	0.1	-	-	-	-

Figure 1. Number of cubs bred and cub mortality in Europe between 1978-1987

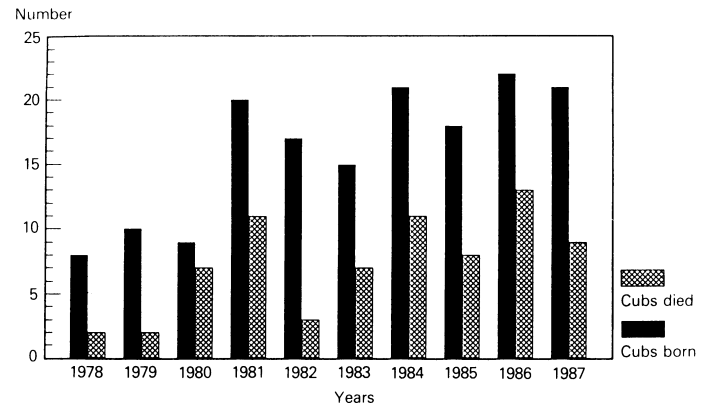


Figure 2. Number of cubs bred and cub mortality in N. America between 1978-1987

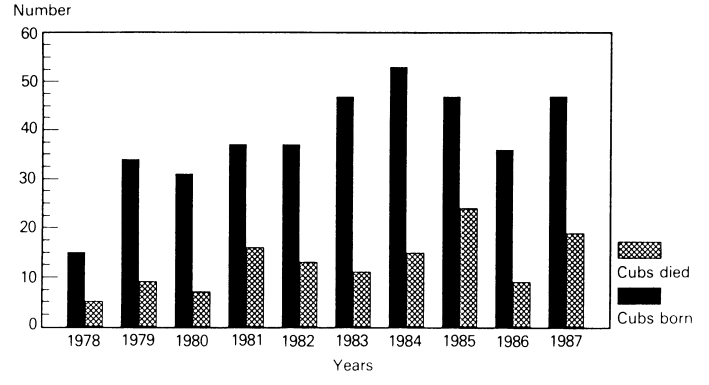


Figure 3. Number of cubs bred and cub mortality in USSR between 1978-1987

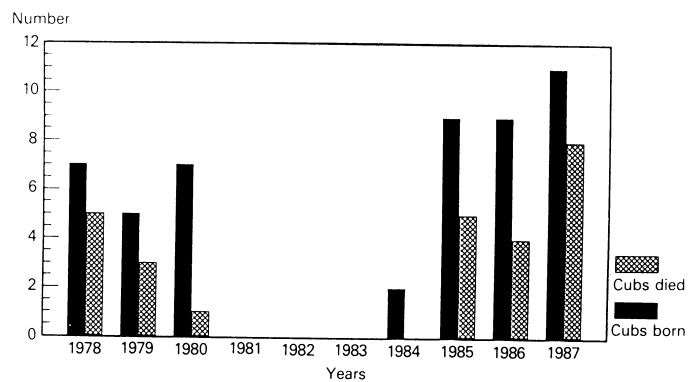


Figure 4. Comparison of Snow Leopard cub mortality percentages, 1978-1987, in the four main regions

